Ministry of Agriculture and Food
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Factsheet

LIQUID MANURE PUMP SPECIFICATIONS - PART A

S. Bradshaw, Agricultural Engineering

The following information has been compiled on several pumps available to Ontario farmers. The capacity of a pump depends on three variables: head, r.p.m. of the pump, power available. In the following tables, only one specific set of circumstances is shown. If any of the variables change capacity will likely be affected. The pump specifications have been supplied by the manufacturers. Information in these charts may not be complete as all suppliers did not respond to the request for data.

For those wishing to convert these values to the Imperial System, note the following:

Capacity (m^3/hr) x 3.7 = capacity (Imp. gal./min.)
Capacity (m^3/hr) x 16.7 = capacity (l/min.)
Power (kW) x 1.3 = power (horsepower)
Head (m) x 3.3 = head (ft)
Diameter (mm) x 0.04 = diameter (in)

LIQUID MANURE PUMP SPECIFICATIONS

MANUFACTURER	AGPRO							
Model	AP115	AP120	AP120B	AP105	AP110	AP155	AP160	AP165
Description of Pump*	2	2	2	5	5	Single Stage Centrifugal	Single Stage Centrifugal	2-Stage Centrifugal
Usual Use**	1,4,6	4,6	1,4,6	4,3	4,3	3	1	3
RPM	540	1800	1800	540	1800	540	1800	540
Capacity (m^3/hr)	90	77	90	32	32	34	34	40
Max. Head (m) at Stated Capacity	9.1	9.1	12.2	60	60	55	55	—
Actual Power Needed (kW)	—	30	37	—	18.6	—	26	—
Usual Power Source	tractor	3 phase electric	3 phase electric	tractor	3 phase electric	tractor	3 phase electric	tractor
Min. Tractor Size (kW)	45	—	—	30	—	37	—	45
Outlet Port Size (mm)	100	—	—	—	—	—	—	—
Other features, comments***	—	2	2	No Large Solids	No Solids	2	2	2

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line (includes centrifugal)

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other features
1. Self priming
2. Handles some solids (including straw and feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydrualic controls
6. Incorporates separate propeller agitator

MANUFACTURER	AGPRO	AILSA	CRAIG	ATLAS			BADGER	
Model	AP170B	—	—	RS68	401-3	502-4M	3321	3322
Description of Pump*	Double Vane Centrifugal	—	—	1	1	1	1	1
Usual Use**	3	1,4	1,4	4	4	4	1,2,3,4	1,2,3,4
RPM	1800	540	1000	1750	1750	1750	540	1000
Capacity (m^3/hr)	40	—	—	27	56	225	590-816	578-793
Max. Head (m) at Stated Capacity	—	—	—	3	10	15	0	0
Actual Power Needed (kW)	34	—	—	3.7	3.7	15	32/67	31/62
Usual Power Source	3-phase electric	tractor	tractor	electric	electric	electric	tractor	tractor
Min. Tractor Size (kW)	—	52	93	—	—	—	—	—
Outlet Port Size (mm)	—	152	152	64	76	100	140	140
Other features, comments***	—	—	—	1,2	1,2	1,2	1,2,3	1,2,3

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER	BADGER			BARNES		BAUER		
Model	3323	3324	BN184	156	FIC	FIIIM	FIIIRD	FIIIRD 1000-3
Description of Pump*	1	1	1	2	4	4	4	4
Usual Use**	1,2,3,4	1,2,3,4	1,2	4,5	4,5	4,5	1,3,4	3
RPM	540	1000	1000	1150-3450	1800	2600	540	1000
Capacity (m^3/hr)	680-930	850-952	794	12-365	40	100	100	100
Max. Head (m) at Stated Capacity	0	0	0	3-18	7.2	47	63	108
Actual Power Needed (kW)	45/86	72/90	80	.25-36	2.2	3.7-15	20	28
Usual Power Source	tractor	tractor	tractor	electric	electric	electric	tractor	tractor
Min. Tractor Size (kW)	—	—	80	—	—	—	—	—
Outlet Port Size (mm)	140	140	—	38-152	70	80	80	80
Other features, comments***	1,2,3	1,2,3	—	1,2,4	2	2	2	2

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
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6. Incorporates separate propeller agitator

MANUFACTURER	BADGER		BERKELY				BETTER-BILT	
Model	FIIIRD 1000-6	ROTA 121	C 1-1/2 KTPS	C2KMPS	B3KWR KNCS	B4K2R KNCS	8" AUGER CHOPPER	LAGOON 26'
Description of Pump*	4	3	4	4	4	4	AUGER	1
Usual Use**	3	3	3,4	3,4	3,4,5	3,4,5	1	2
RPM	1000	540	3600	3600	1800 + various	1200- 1800 + various	540/1000	540/1000
Capacity (m^3/hr)	100	78	23	46	113	181	681	681
Max. Head (m) at Stated Capacity	112	80	22.5	23	29	29	—	—
Actual Power Needed (kW)	29	24	1.1	2.2	9	13.4	67	100
Usual Power Source	tractor	tractor	electric	electric	electric or belt	electric or belt	tractor	tractor
Min. Tractor Size (kW)	—	—	—	—	—	—	—	—
Outlet Port Size (mm)	80	108	38	50.8	76	101.6	152	152
Other features, comments***	2	4	—	—	—	—	4	2

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
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3. Irrigation
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5. Flushing
6. Other

***Other Features
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4. Handles large amounts of solids
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6. Incorporates separate propeller agitator

MANUFACTURER	CLAY		CRISAFULLI					
Model	Super 8"	Lagoon Pump	4HYS	3HYS	HBO6H 15M	HBO8H 15M	HB12H 15M	6V20 R1B
Description of Pump*	1	1	1,2	1,2	1,2	1,2	1,2	1,2
Usual Use**	1,4	2	1,2,4	1,2,4	1,2	1,2	1,2	4
RPM	1000	1000	1000-2000	1000-2000	540/1000	540/1000	540/1000	513
Capacity (m^3/hr)	681 Agitate 409 Pump	—	—	—	—	—	—	—
Max. Head (m)	—	—	23	13	13	13	15	9
Actual Power Needed (kW)	—	—	Hyd. Flow 1.1 l/s	Hyd. Flow .95 l/s	2.6	32	74.5	14.9
Usual Power Source	tractor	tractor	tractor backhoe	tractor backhoe	tractor	tractor	tractor	electric

Min. Tractor Size (kW)	93	75	—	—	29.8	44.7	81.9	—
Outlet Port Size (mm)	204 Agitate 127 Pump	102	100	76	150	200	300	150
Other features, comments***	2	—	1,2,4,5,6 Portable	1,2,4,5,6 Portable	Trailer Mounted 1,2,4,5,6	Trailer Mounted 1,2,4,5,6	Trailer Mounted 1,2,3,5,6	Vertical Fixed 1,2,4,6

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
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***Other Features
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5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER Model	CRISAFULLI 8V25R1B	S6V50H1	FARMSTAR Pit Pal	GORMAN MA2A2-B	RUPP MA3A2-B	M4A20-B	MA4A2-B	M6A20-B
Description of Pump*	2	1,2	2	4	4	4	4	4
Usual Use**	1,2,4	2	3,4,6	1,2,4,5	1,2,4,5	1,2,4	1,2,4	1,2,4
RPM	540	600	—	2600	2400	1950	2050	1550
Capacity (m^3/hr)	—	—	50	41	91	160	148	319
Max. Head (m)	8	19	15	18	17	24	18	18
Actual Power Needed (kW)	18.6	37.3	15	4	9.2	21.0	13.8	31.6
Usual Power Source	electric	electric	hydraulic	electric	electric	electric	electric	electric
Min. Tractor Size (kW)	—	—	—	—	—	—	—	—
Outlet Port Size (mm)	200	150	75	50	76	100	100	150
Other features, comments***	Vertical Fixed 1,2,4,6	Barge Mounted 1,2,4,6	Agitates Pumps Portable	1,2,3	1,2,3	1,3,4	1,3,4	1,3,4

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER Model	GORMAN MA6A2-B	RUPP MV3A2-B	MB4A20-B	MA4A2-VH40	MA3A2-G	MA4A2-G	MB4A20AB-GA	M4HA2-GA
Description of Pump*	4	4	4	4	4	4	4	4
Usual Use**	1,2,4	1,2,3	1,2,3	1,2,4	1,2,4	1,2,4	1,2,3	1,2,4
RPM	1750	2900	2200	2400	600	600	1000	1000
Capacity (m^3/hr)	319	91	182	148	91	160	182	148
Max. Head (m)	21	68	99	21	18	20	99	21
Actual Power Needed (kW)	33	28.2	75.2	17.1	10	—	—	—
Usual Power Source	electric	electric	electric	electric	tractor	tractor	tractor	tractor
Min. Tractor Size (kW)	—	—	—	—	13.4	18.6	81.9	18.6
Outlet Port Size (mm)	150	76	100	100	76	100	100	100
Other features, comments***	1,2,3	2,3	2,3	1,2,3	1,2,3	1,2,3	2,3	2,3

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
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3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER Model	HOULE Agi-Pompe Standard	Super Pump	Transfer Pump	Transfer Pump	Agi-Pompe Lagoon	HUSKY Electric	A	C72
Description of Pump*	1	1	1	1	1,2	1	1	1
Usual Use**	1,4	1,4	4	4	2	4	1	1
RPM	540/1000	540/1000	—	—	540/1000	1200	540	800
Capacity (m^3/hr)	540	680	90	110	540	109	227	454

Max. Head (m)	—	—	6	9	—	6	6	9
Actual Power Needed (kW)	—	—	3.75	5.6	—	3.73	—	—
Usual Power Source	tractor	tractor	electric	electric	tractor	electric	tractor	tractor
Min. Tractor Size (kW)	45	52	—	—	44.7	—	22	32
Outlet Port Size (mm)	150	—	—	100	152	76	127	127
Other features, comments***	1,2,3,5,6	1,2,3,5	1	1	No Dock Needed.	2	2	2

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER	HUSKY				LANGER			LONG
Model	H5000	K31	Lagoon	Lagoon	80	100	110	MB4AA
Description of Pump*	1	1	1	1	3	3	3	4
Usual Use**	1	1	2	2	1,2,3	1,2,3	1,2,3	3
RPM	540/1000	540	540	1000	540	540	540	1000
Capacity (m^3/hr)	1365	983	550	1640	59	120	179	227
Max. Head (m)	12	12	12	12	—	—	—	—
Actual Power Needed (kW)	—	52	—	—	—	—	—	—
Usual Power Source	tractor	tractor	tractor	tractor	tractor	tractor	tractor	tractor
Min. Tractor Size (kW)	75	—	52	112	—	—	—	75
Outlet Port Size (mm)	203	152	200	200	—	—	—	127
Other features, comments***	4	2	4	4	1,4	1,4	1,4	2

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER	NUHN							
Model	5	7-1/2	10	8"	4"	5"PTO	6"PTO	8"PTO
Description of Pump*	1	1	1	1	1	1	1	1
Usual Use**	4,5	4,5	4,5	6,4,5	6,4,5	1	1	1
RPM	1740	1740	1740	1725	1725	540	540/1000	540/1000
Capacity (m^3/hr)	137	218	273	—	—	—	—	—
Max. Head (m)	12.2	12.2	12.2	—	—	—	—	—
Actual Power Needed (kW)	3.7	5.6	7.5	—	—	—	—	—
Usual Power Source	electric	electric	electric	tractor	tractor	tractor	tractor	tractor
Min. Tractor Size (kW)	—	—	—	26	45	75	45	71
Outlet Port Size (mm)	100	100	127	—	—	—	—	—
Other features, comments***	—	—	—	1,2,4	1,2,4	1,2,4	1,2,4,5	1,2,4,5

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

Note: These specifications are continued in Part B Factsheet, Order No. 85-042.

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Factsheet

LIQUID MANURE PUMP SPECIFICATIONS - PART B

S. Bradshaw, Agricultural Engineering

MANUFACTURER	NUNN							
Model	1	1-1/2	2	3	6" Lagoon	8"Lagoon	Silo	5"Yard
Description of Pump*	1	1	1	1	1	1	1	1
Usual Use**	4,5	4,5	4,5	4,5	2	2	Above Ground	Feedlots Shallow Pits
RPM	1740	1740	1740	1740	540	540-1000	540	540
Capacity (m^3/hr)	34	41	55	82	—	—	—	—
Max. Head (m)	12.2	12.2	12.2	12.2	—	—	—	—
Actual Power Needed (kW)	.75	1.1	1.5	2.2	—	—	—	—
Usual Power Source	electric	electric	electric	electric	tractor	tractor	tractor	tractor
Min. Tractor Size (kW)	—	—	—	—	45	71	37-75	30
Outlet Port Size (mm)	51	51	100	100	—	—	—	—
Other features, comments***	—	—	—	—	1,2,4,5	1,2,4,5	1,2,4,5	1,2,4

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER	POLYQUIP				WYLAIN			
Model	201T	301T	401T	401TD	30MP	40MP	60MP	80MP
Description of Pump*	4	4	4	4	4	4	4	4
Usual Use**	—	—	—	—	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5
RPM	3600	3600	3600	3600	2000	2000	2000	1450
Capacity (m^3/hr)	45	105	139	143	65	100	350	600
Max. Head (m)	27	27	27	27	30	25	60	45
Actual Power Needed (kW)	3.4	5.6	7.8	10.4	.74	.74	2.2	7.46
Usual Power Source	gas	gas	gas	diesel	electric	electric	electric	electric
Min. Tractor Size (kW)	—	—	—	—	—	—	—	—
Outlet Port Size (mm)	50	75	100	100	75	100	150	200
Other features, comments***	1,2	1,2	1,2	1,2	2	2	2	2

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER	WYLAIN						
Model	RC	RC	RC	S	S	SPG	SPG
Description of Pump*	2	2	2	2	2	Grinder	Grinder
Usual Use**	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	3,4,5	3,4,5
RPM	1200	1800	3600	1200	1800	1800	3600
Capacity (m^3/hr)	250	275	125	to 465	to 465	to 36	to 22
Max. Head (m)	20	40	30	49	49	30	50

Actual Power Needed (kW)	.56	2.2	1.5	.37	.37	2.2	1.1	
Usual Power Source	electric	electric	electric	electric	electric	electric	electric	
Min. Tractor Size (kW)	—	—	—	—	—	—	—	—
Outlet Port Size (mm)	100	100	100	75-300	75-300	50	31-50	
Other features, comments***	2	2	2	2	2	3	3	

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
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3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
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3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

MANUFACTURER Model	BETTER-BILT 800	1200	1600	900	Vertical 400	Vertical 600	Vertical 800	CLAY Heavy Duty 5"
Description of Pump*	4	4	4	4	1	1	1	1
Usual Use**	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1	1	1	1,4
RPM	540/1000	1000	540	1000	540/1000	1000	1000	540
Capacity (m^3/hr)	182	273	182	182	363	636	1135	477 agit. 295 load.
Max. Head (m) at Stated Capacity	—	—	—	—	—	—	—	—
Actual Power Needed (kW)	—	—	—	—	30	45	67	40
Usual Power Source	tractor	tractor	tractor	tractor	tractor or electric	tractor or electric	tractor or electric	tractor
Min. Tractor Size (kW)	64	82	90	75	30	45	67	45
Outlet Port Size (mm)	100	152	100	100	100	152	152	127
Other features, comments***	2	2	2	2	2	2	2	—

*Description of Pump
1. Submerged impeller
2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
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6. Other

***Other Features
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MANUFACTURER Model	VANDALE Agitator Filler Pump	C-1800
Description of Pump*	1	4
Usual Use**	1,2,4	1,2
RPM	540	540/1000
Capacity (m^3/hr)	—	570
Max. Head (m)	—	—
Actual Power Needed (kW)	—	—
Usual Power Source	tractor	—
Min. Tractor Size (kW)	45	—
Outlet Port Size (mm)	140	100
Other features, comments***	—	—

*Description of Pump
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2. Submersible
3. Helical rotor
4. Other pumps with suction line

**Usual Use
1. Agitate and empty large holding tanks
2. Agitate and empty earthen pits
3. Irrigation
4. Empty small holding tanks (transfer pump)
5. Flushing
6. Other

***Other Features
1. Self Priming
2. Handles some solids (incl. straw & feathers)
3. Cutter bars to chop solids
4. Handles large amounts of solids
5. Hydraulic controls
6. Incorporates separate propeller agitator

Note: Information in this chart may not be complete as all suppliers did not respond to survey.
Note: More models are listed in Part A Factsheet, Order No. 85-037.